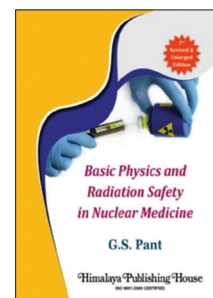


Basic Physics and Radiation Safety in Nuclear Medicine

Title: Basic Physics and Radiation Safety in Nuclear Medicine
Edition: Second Revised and Enlarged Edition 2018
Editor: G. S. Pant
Publisher: Himalaya Publishing House, Mumbai
ISBN No: 978-93-5299-278-2
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The book entitled Radiation Physics edited by Prof. G. S. Pant has its contents divided into six parts as detailed below.

- Part-I: Basic Physics and Imaging Techniques
- Part-II: Dosimetry
- Part-III: Radionuclides and Radiopharmaceuticals in Nuclear Medicine
- Part-IV: Cyclotron, Positron Emission Tomography/Computed Tomography (PET/CT), and Positron Emission Tomography/Magnetic Resonance Imaging (PET/MR)
- Part-V: Quantification Techniques in Nuclear Medicine
- Part-VI: Health Physics and Radiation Safety.

PART-I (BASIC PHYSICS AND IMAGING TECHNIQUES)

This part of the book describes in detail the basic concepts relating to radiation physics as applied to detection systems, including image reconstruction and optimization techniques. The overall contents include 12 chapters pertaining to a wide spectrum of topics with featured inclusion of state-of-the-art and latest concepts enabling the reader to have complete insight into the subject in a very lucid manner.

PART-II (DOSIMETRY)

This part of the book has six chapters predominantly devoted to dosimetric procedures with special reference to their application both in malignant and in nonmalignant conditions of the thyroid as well as targeted radionuclide therapy for selective and optimized dose delivery. It is indeed very interesting to have seen that such issues are addressed in a very detailed manner and the software such as Olinda/EXM is introduced to discuss their applications in the estimation of internal radiation doses in diagnostic nuclear medicine procedures, in vogue.

PART-III (RADIONUCLIDES AND RADIOPHARMACEUTICALS IN NUCLEAR MEDICINE)

In this chapter, application of radionuclides/radiopharmaceuticals in nuclear medicine and research has been extensively discussed including their therapeutic

applications. The information provides an insight into the basic principles and characteristics involved in design and development of radiopharmaceuticals for a wide range of their therapeutic applications.

PART-IV (CYCLOTRON, PET/CT, AND PET/MR)

This part of the book is comprehensively devoted to recent developments both in medical cyclotron and in PET/CT including the basic principles involved in instrumentation as well as other technical aspects. In addition, the application of PET/CT in radiotherapy planning and image analysis techniques has found a place as separate chapters in this part of the book. It would offer immense help in understanding the optimization of treatment planning and precise definition of target or tumor volume followed by monitoring of therapeutic outcome or response.

PART-V (QUANTIFICATION TECHNIQUES IN NUCLEAR MEDICINE)

This part of the book includes chapters dedicated to quantification techniques used in nuclear medicine. In particular, the chapters on deconvolution analysis and radiotracer kinetics are of special importance as they deal with image optimization using advanced quantitative methodologies.

PART-VI (HEALTH PHYSICS AND RADIATION SAFETY)

This part of the book attracts special interest because of the chapters which deal comprehensively with biological effects of radiation and other safety considerations used to ensure safe use of radionuclides in a nuclear medicine department. The chapter on diagnostic reference levels is also a unique attempt to highlight and compare various reference levels used in global scenario as well as in Indian standards.

The authors of various chapters included in this book have toiled hard to highlight the major advancements and current techniques used in various areas of nuclear medicine. It can

be, therefore, contemplated that the readers of the book will find all possible information in the capsular form as far as “Basic Physics and Radiation Safety in Nuclear Medicine” are concerned. It would not be, therefore, out of place to mention that the present book will serve as a textbook both for the students and for the teachers.

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